Wednesday, October 20, 2021
4:30 p.m. to 4:45 p.m.
Research Paper

Tennessee Academy of Family Physicians
72nd Annual Scientific Assembly
The Park Vista Doubletree Hotel, Gatlinburg, Tennessee
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"Efficacy of Care Coordination in Patients with Hypertension and Diabetes"

HAYLEY WARD

Presentation Objectives:

1) Define care coordination and explain its purpose in a primary care clinic.
2) Elaborate on the previous research exploring the benefits of care coordination, specifically in patients with hypertension and diabetes.
3) Determine whether enrollment in care coordination affects patient health variables/ outcomes such as hemoglobin A1C, blood pressure, and body mass index (BMI).
4) Determine whether enrollment in care coordination affects the number of clinic visits and percentage of no-show appointments.
5) Determine if the number of care coordination appointments is correlated with BMI, hemoglobin A1C, and blood pressure.
6) Propose recommendations for care coordination based on this study and future studies.

Efficacy of Care Coordination for Patients with Hypertension and Diabetes

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Purpose

- Does the UT Family Medicine - St Francis (UT-FM) care coordination program benefit patients?
- To perform a Quality Improvement Study to determine if care coordination visits improve health outcomes in patients diagnosed with both hypertension and diabetes at UT Family Medicine- St. Francis (UT-FM).

Background:
Patient Centered Medical Home (PCMH)

- UT Family Medicine – St. Francis (UT-FM) is a PCMH
- What is a PCMH?
  - Patient-centered access
  - Team-based care
  - Population health management
  - Care management support
  - Care coordination and care transitions
  - Performance measurement and quality improvement

Care Coordination at UT-FM

- Eligibility:
  - 2+ chronic diagnoses in the last 18 months
- Program for the Patient:
  - Receives a care coordinator
  - Meets periodically with coordinator in-person or over the phone
    - Ideally once a month
    - COVID-19 pandemic resulted in most of the meetings taking place over the phone
  - Helps patient understand health goals
  - Reminds patient of future appointments

Why Diabetes and Hypertension?

- Measurable variables associated with patient outcomes
  - Increased hemoglobin A1C, blood pressure, and Body Mass Index (BMI) are associated with cardiovascular events and renal disease

- Previous Systematic Reviews
  - Care coordination showed significant decreases in A1C and blood pressure (Lee et al., 2021)
  - Mixed results (Carlin et al., 2021)

Questions

- Are there differences in average blood pressure, BMI, and A1C in patients with hypertension and diabetes enrolled in care coordination versus patients with hypertension and diabetes not enrolled in care coordination?
- Does patient enrollment in care coordination affect the number of clinic visits and missed appointments compared to patients not enrolled in care coordination?
- In patients enrolled in care coordination, does the number of care coordination visits correlate with blood pressure, BMI, and A1C?

Hypotheses

- If the care coordination program is efficacious, then patients receiving care coordination will have lower BMI, well-controlled blood pressure, and well-controlled hemoglobin A1C compared to those not receiving care coordination.

- If patient care coordination is efficacious, then patients receiving care coordination will have fewer medical appointments and fewer missed appointments compared to those not receiving care coordination.

- If patient care coordination is efficacious, then patients with more care coordination appointments will have better controlled hemoglobin A1C, BMI, and blood pressure compared to patients with fewer care coordination appointments.

Methods

- Treatment group: patients with hypertension and diabetes enrolled in care coordination
- Control group: patients with hypertension and diabetes not enrolled in care coordination
- Data points collected
  - Age
  - Sex
  - BMI at last visit
  - Average systolic blood pressure over the past 12 months
  - Average diastolic blood pressure over the past 12 months
  - Average A1C over the past 12 months
  - Number of care coordination visits in the past 12 months
  - Number of doctor appointments in the past 12 months
  - Number of no-show appointments (excluding care coordination appointments) in the past 12 months
  - Percentage of no-show appointments (excluding care coordination appointments) in the past 12 months
- SPSS 25 used for data storage and statistical analysis

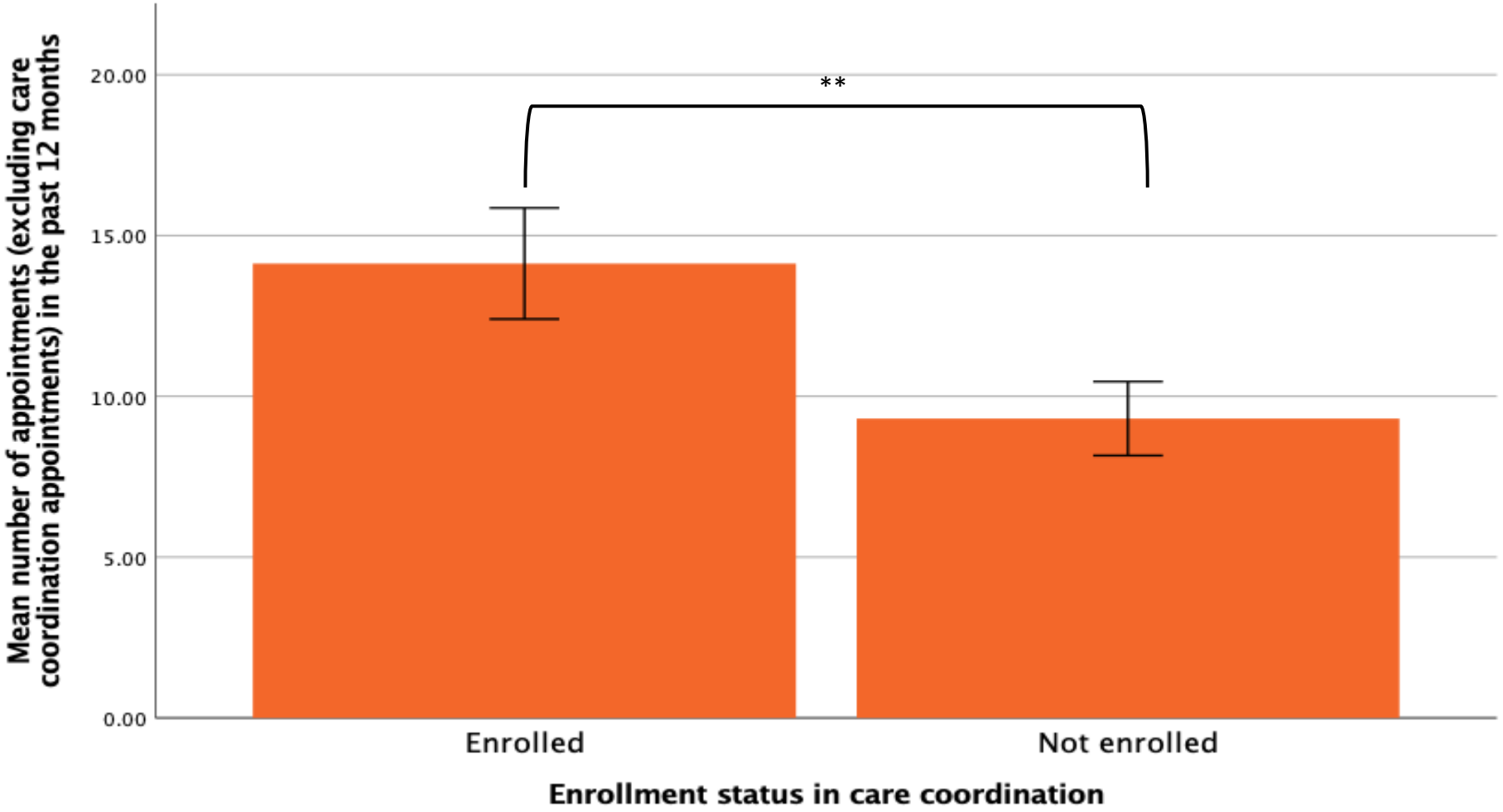
Demographics and Lab Values for Patients Enrolled and Not Enrolled in Care Coordination

	Enrolled in care coordination	**Not enrolled in care coordination**
Age	58.57	59.65
Sex	77% female, 23% male	64% female, 36% male
Systolic BP	137.03	138.86
Diastolic BP	82.08	81.66
A1C	7.98	7.77
BMI	37.24	34.37

***Sex is significant at $p<0.001$

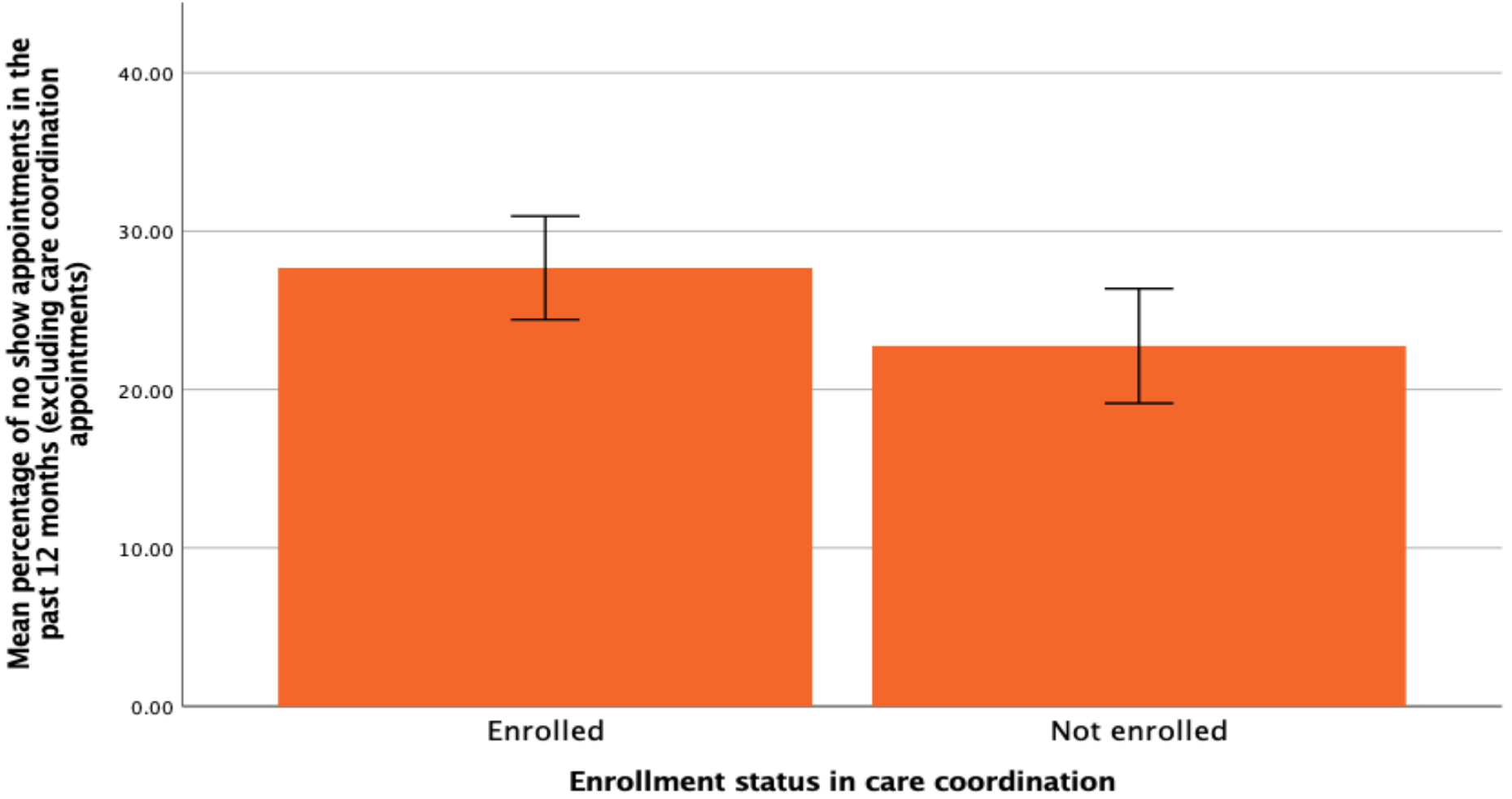
Other variables are non-significant

Number of Doctor Appointments in the Past 12 Months in Patients Enrolled and Not Enrolled in Care Coordination



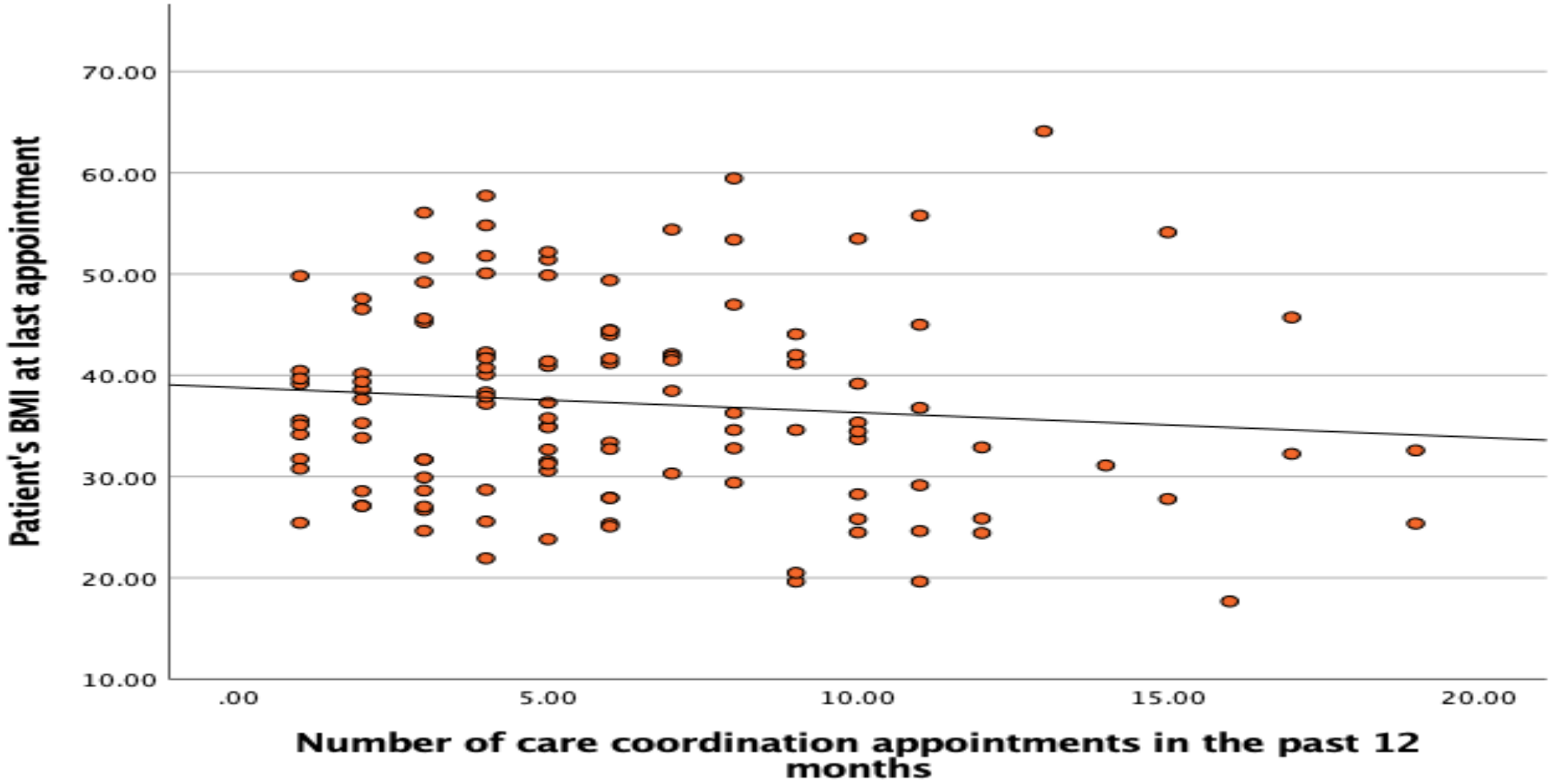
**p<0.01
Mean for enrolled- 14.1
Mean for not enrolled- 9.3

Percentage of No-Show Doctor Appointments in the Past 12 Months in Patients Enrolled and Not Enrolled in Care Coordination



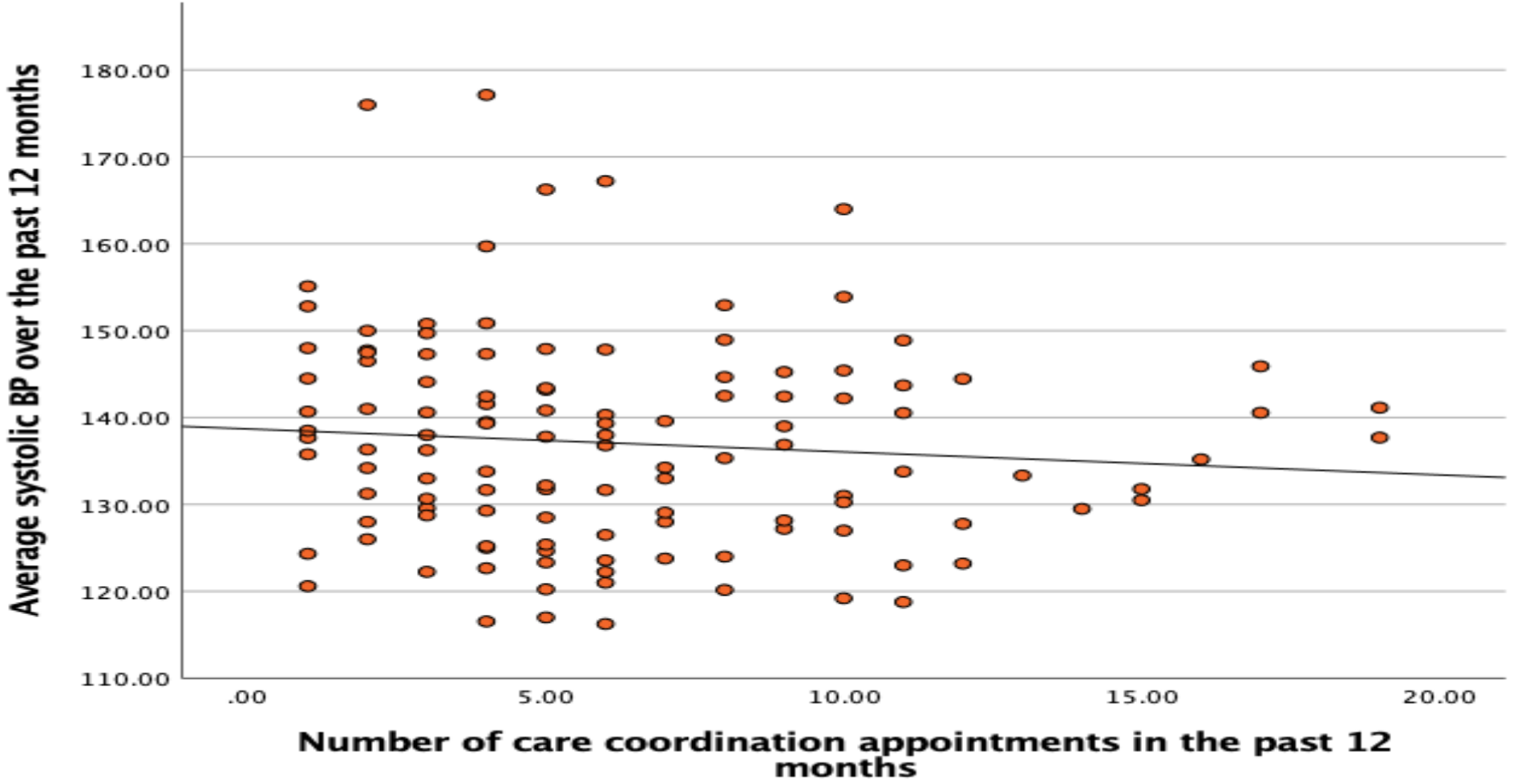
Nonsignificant at p=0.28
Mean for enrolled- 27.7
Mean for not enrolled- 22.8

BMI Trend as a Function of Number of Care Coordination Appointments in the Past 12 Months



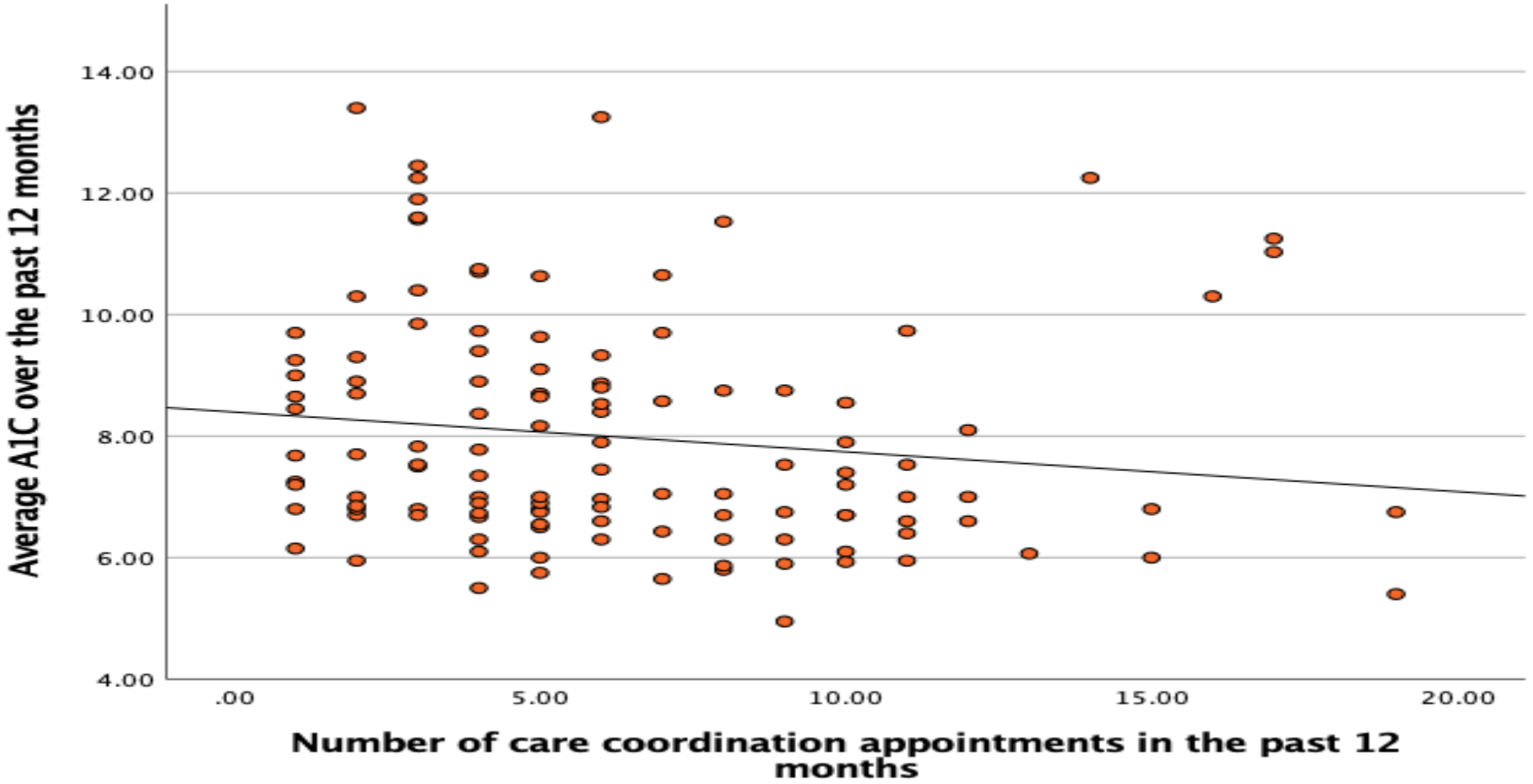
Nonsignificant at p=0.26

Systolic Blood Pressure Trend as a Function of Number of Care Coordination Appointments in the Past 12 Months



Nonsignificant at p=0.32

A1C Trend as a Function of Number of Care Coordination Appointments in the Past 12 Months



Nonsignificant at p=0.12

Discussion

- Are there significant differences in average blood pressure and A1C in patients with hypertension and diabetes enrolled in care coordination versus patients with hypertension and diabetes not enrolled in care coordination? NO
- Why?
  - Small sample size
  - Care coordination is not efficacious in altering health outcomes
  - Patients with uncontrolled diseases and more co-morbidities are receiving care coordination

Discussion cont.

- Is BMI significantly different in patients with diabetes and hypertension enrolled in care coordination compared to those not enrolled in care coordination? NO but…
  - On average, patients enrolled in care coordination had 3 points higher BMI compared to those not enrolled in care coordination
- Why?
  - Patients with uncontrolled diseases and more co-morbidities are receiving care coordination

Discussion cont.

- Does patient enrollment in care coordination significantly affect the number of clinic visits and missed appointments compared to patients not enrolled in care coordination? YES for clinic visits
- Why?
  - Patients with more complications are enrolled in the program
  - Care coordination makes sure the appointments are scheduled
    - May explain the higher percentage of no-show appointments in the care coordination group

Discussion cont.

- In patients enrolled in care coordination, does the number of care coordination visits significantly correlate with blood pressure, BMI, and A1C? NO but…
  - The linear regressions do have a negative slope
  - More care coordination appointments may correlate with better health outcomes

Discussion cont.

- Other Notable Findings
  - Statistical significance between the sexes of the groups (77% female vs. 64% female)
- Limitations
  - Relatively small sample size with N=119 per group
  - Selection of only N=119 out of 336 patients with hypertension and diabetes not receiving care coordination
  - The COVID-19 pandemic caused the majority of care coordination visits to be conducted by phone as opposed to the usual in-person visits

Recommendations

- **CURRENT STUDY:**
- Emphasize the care coordination program to qualifying males to balance the ratio of male to female enrollment.
- Utilize care coordination to encourage patient compliance and attendance at medical appointments.

- **FUTURE STUDIES:**
- Further studies which explore patient's blood pressure, BMI, and hemoglobin A1C before and during care coordination.
- Further studies which investigate the effect of care coordination on patients that have not been seen by a doctor in over a year.
- Further investigation of whether the way the care coordination is delivered would play a role in the effectiveness of care coordination.

Acknowledgements

- UT Family Medicine- St. Francis (UT-FM) clinic
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- Dr. Thomas Spentzas

References

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Questions?